

What is claimed is:

1. An isolated polynucleotide comprising:
 - (a) SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12;
 - (b) a fragment of at least 15 contiguous nucleobases of
5 SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12;
 - (c) a nucleic acid sequence which, due to degeneracy in genetic coding, comprises variations in nucleotide sequence as compared to SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12, but which still encodes the same protein; or
10 (d) a nucleic acid sequence which hybridizes under stringent conditions to an antisense sequence of SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12.
2. An antisense oligonucleotide which hybridizes to a polynucleotide of claim 1.
- 15 3. A vector comprising the polynucleotide of claim 1.
4. A host cell expressing the vector of claim 3.
5. A method for producing a LSG polypeptide comprising culturing the host cell of claim 4 under conditions which promote expression of the polynucleotide and isolating
20 polypeptide expressed in the cells.
6. A method for producing a cell expressing a LSG polypeptide comprising transforming or transfecting a cell with the vector of claim 3 so that the cell, under appropriate culture conditions, expresses a LSG polypeptide.
- 25 7. A polypeptide encoded by the polynucleotide of claim 1.

8. An antibody which is immunospecific for the polypeptide of claim 7.

9. A LSG for diagnosing lung cancer comprising a polynucleotide of claim 1 or a polypeptide encoded thereby.

5 10. A method for diagnosing the presence of lung cancer in a patient comprising:

(a) determining levels of a LSG of claim 9 in cells, tissues or bodily fluids in a patient; and

10 (b) comparing the determined levels of LSG with levels of a LSG of claim 9 in cells, tissues or bodily fluids from a normal human control, wherein a change in determined levels of LSG in said patient versus normal human control is associated with the presence of lung cancer.

15 11. A method of diagnosing metastases of lung cancer in a patient comprising:

(a) identifying a patient having lung cancer that is not known to have metastasized;

(b) determining levels of a LSG of claim 9 in a sample of cells, tissues, or bodily fluid from said patient; and

20 (c) comparing the determined LSG levels with levels of a LSG of claim 9 in cells, tissue, or bodily fluid of a normal human control, wherein an increase in determined LSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

25 12. A method of staging lung cancer in a patient having lung cancer comprising:

(a) identifying a patient having lung cancer;

(b) determining levels of a LSG of claim 9 in a sample of cells, tissue, or bodily fluid from said patient; and

30 (c) comparing determined LSG levels with levels of a LSG of claim 9 in cells, tissues, or bodily fluid of a normal

human control, wherein an increase in determined LSG levels in said patient versus the normal human control is associated with a cancer which is progressing and a decrease in the determined LSG levels is associated with a cancer which is
5 regressing or in remission.

13. A method of monitoring lung cancer in a patient for the onset of metastasis comprising:

- (a) identifying a patient having lung cancer that is not known to have metastasized;
- 10 (b) periodically determining levels of a LSG of claim 9 in samples of cells, tissues, or bodily fluid from said patient; and
- (c) comparing the periodically determined LSG levels with levels of a LSG of claim 9 in cells, tissues, or bodily fluid
15 of a normal human control, wherein an increase in any one of the periodically determined LSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

14. A method of monitoring a change in stage of lung
20 cancer in a patient comprising:

- (a) identifying a patient having lung cancer;
- (b) periodically determining levels of a LSG of claim 9 in cells, tissues, or bodily fluid from said patient; and
- (c) comparing the periodically determined LSG levels with
25 levels of a LSG of claim 9 in cells, tissues, or bodily fluid of a normal human control, wherein an increase in any one of the periodically determined LSG levels in the patient versus the normal human control is associated with a cancer which is progressing in stage and a decrease is associated with a
30 cancer which is regressing in stage or in remission.

15. A method of identifying potential therapeutic agents for use in imaging and treating lung cancer comprising

screening molecules for an ability to bind to a LSG of claim 9 wherein the ability of a molecule to bind to LSG is indicative of the molecule being useful in imaging and treating lung cancer.

- 5 16. A method of imaging lung cancer in a patient comprising administering to the patient the antibody of claim 8.

17. The method of claim 16 wherein said antibody is labeled with paramagnetic ions or a radioisotope.

- 10 18. A method of treating lung cancer in a patient comprising administering to the patient the antibody of claim 8.

19. The method of claim 18 wherein the antibody is conjugated to a cytotoxic agent.

- 15 20. A method for identifying compounds which antagonize or agonize the LSG polypeptide of claim 7 comprising:

- (a) contacting cells which express the LSG polypeptide of claim 7 or cell membranes expressing the LSG polypeptide of claim 7 with a candidate compound; and
20 (b) monitoring the cells for changes in LSG polypeptide activities or binding as compared to cells or cell membranes not contacted with the candidate compound.

21. A LSG polypeptide agonist identified by the method
25 of claim 20.

22. A LSG polypeptide antagonist identified by the method of claim 20.

23. A vaccine comprising a LSG polypeptide or a vector expressing a LSG polypeptide which induces an immune response against the LSG polypeptide in a mammal.

24. A method of inducing an immune response against a
5 LSG polypeptide in a mammal which comprises administering to the mammal the vaccine of claim 23.

25. A method of treating lung cancer in a patient comprising administering to the patient the vaccine of claim 23.